Name:

at1119paper: Complete the Square, b = odd (v513)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 59x = -714$$

Add $\left(\frac{-59}{2}\right)^2$, which equals $\frac{3481}{4}$, to both sides of the equation.

$$x^2 - 59x + \frac{3481}{4} = \frac{625}{4}$$

Factor the left side.

$$\left(x + \frac{-59}{2}\right)^2 = \frac{625}{4}$$

Undo the squaring.

$$x + \frac{-59}{2} = \frac{-25}{2} \quad \text{or} \quad x + \frac{-59}{2} = \frac{25}{2}$$
$$x = \frac{59 - 25}{2} \quad \text{or} \quad x = \frac{59 + 25}{2}$$
$$x = 17 \quad \text{or} \quad x = 42$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 37x = -232$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 41x \;=\; 230$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 11x \;=\; 1230$$